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THIRD QUARTERLY REPORT
FOR
MAGSAT SCIENCE INVESTIGATIONS

Contract NAS 5-26328

For the period
3/1/81 - 5/31/81

submitted to

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771

by

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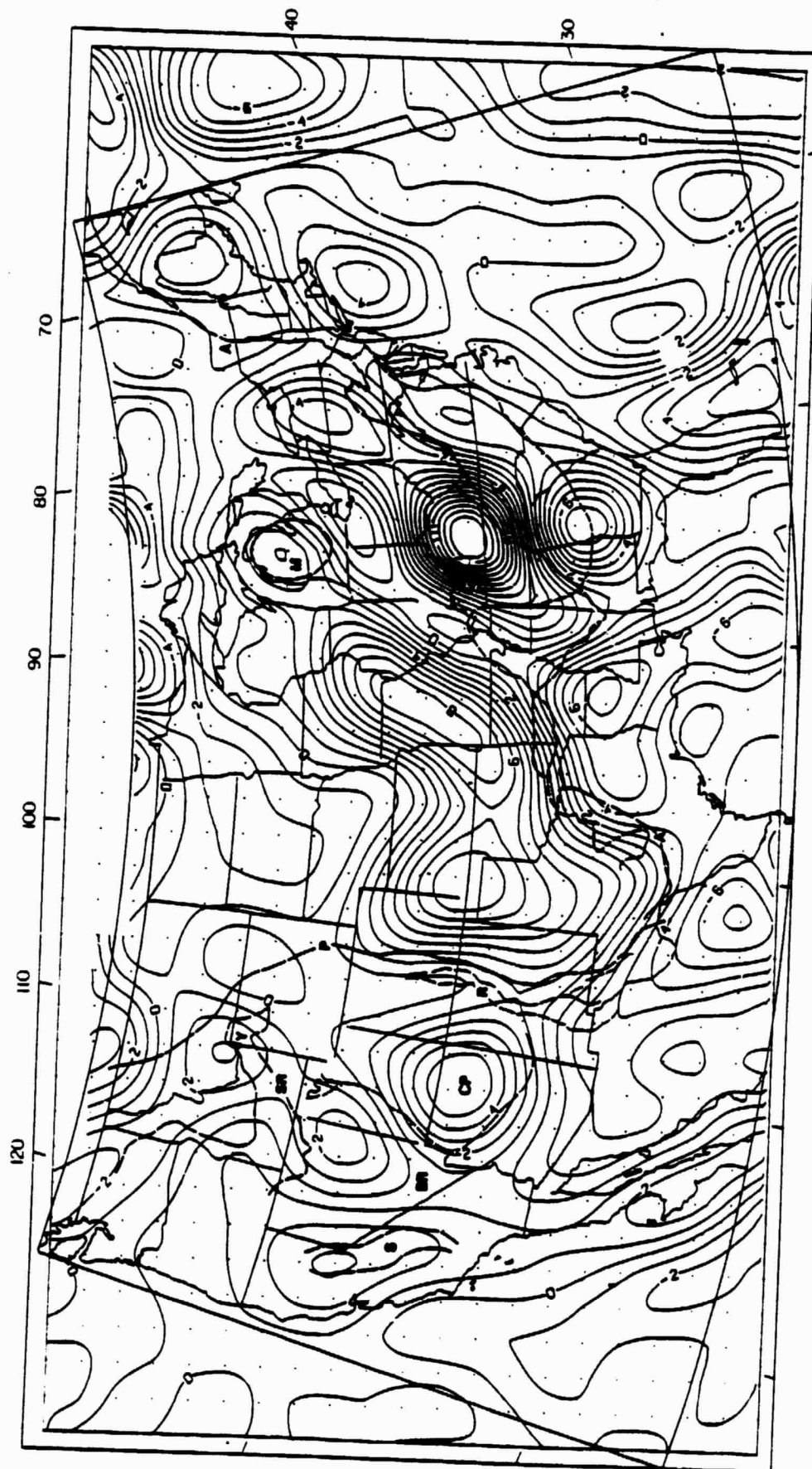
1.0 WORK ACCOMPLISHED DURING REPORT PERIOD

During this quarter a preliminary magnetization model for the U.S. was produced (attached) and was presented at the Baltimore AGU. The model was computed in the manner of previous models using Pogo delta-B data, but with a lower elevation Magsat data much higher resolution is possible. The double-grid method (described in paper JGR review) results in a 100 km source spacing. While some spurious features are present in the map, much of the detail appears to be real. We are currently in the process of determining the optional source spacing for inversion of Magsat delta-B data. A fine attitude vector data set has been obtained, this data will be compared with the theoretical vector field associated with the magnetization model, and later will be included for a final magnetization mode for the U.S.. Appropriate software is nearing completion. Spectral analysis software is still being tested.

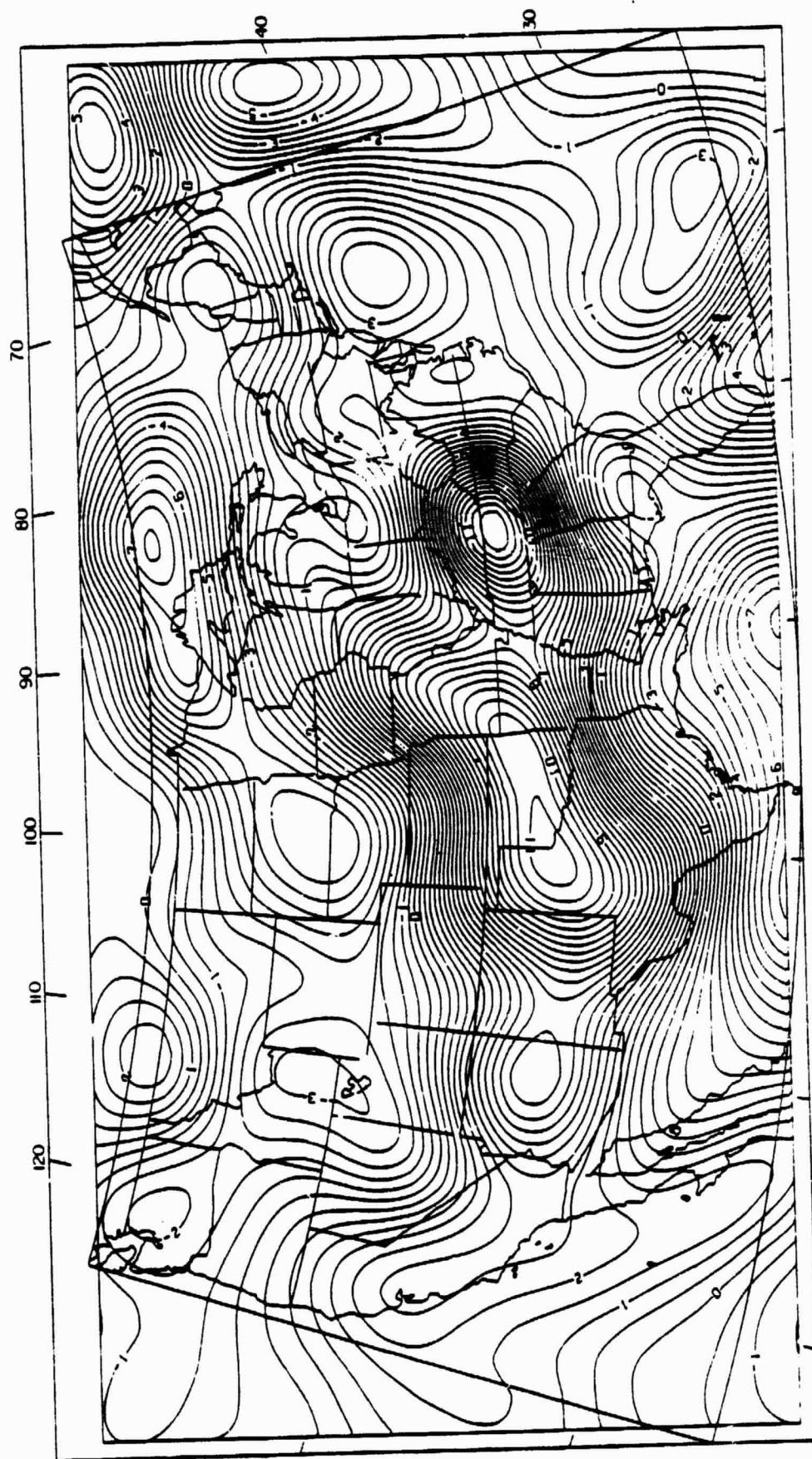
2.0 WORK PLANNED FOR NEXT REPORTING PERIOD

1. Carry out sequence of inversions for variable source spacing to determine resolution limit.
2. Produce initial magnetization model at this limit.
3. Compare vector field associated with model, with Magsat data.
4. Develop methodology for weeding Magsat data for quality, and produce selected data set.
5. Complete development and testing of spectral analysis software package.

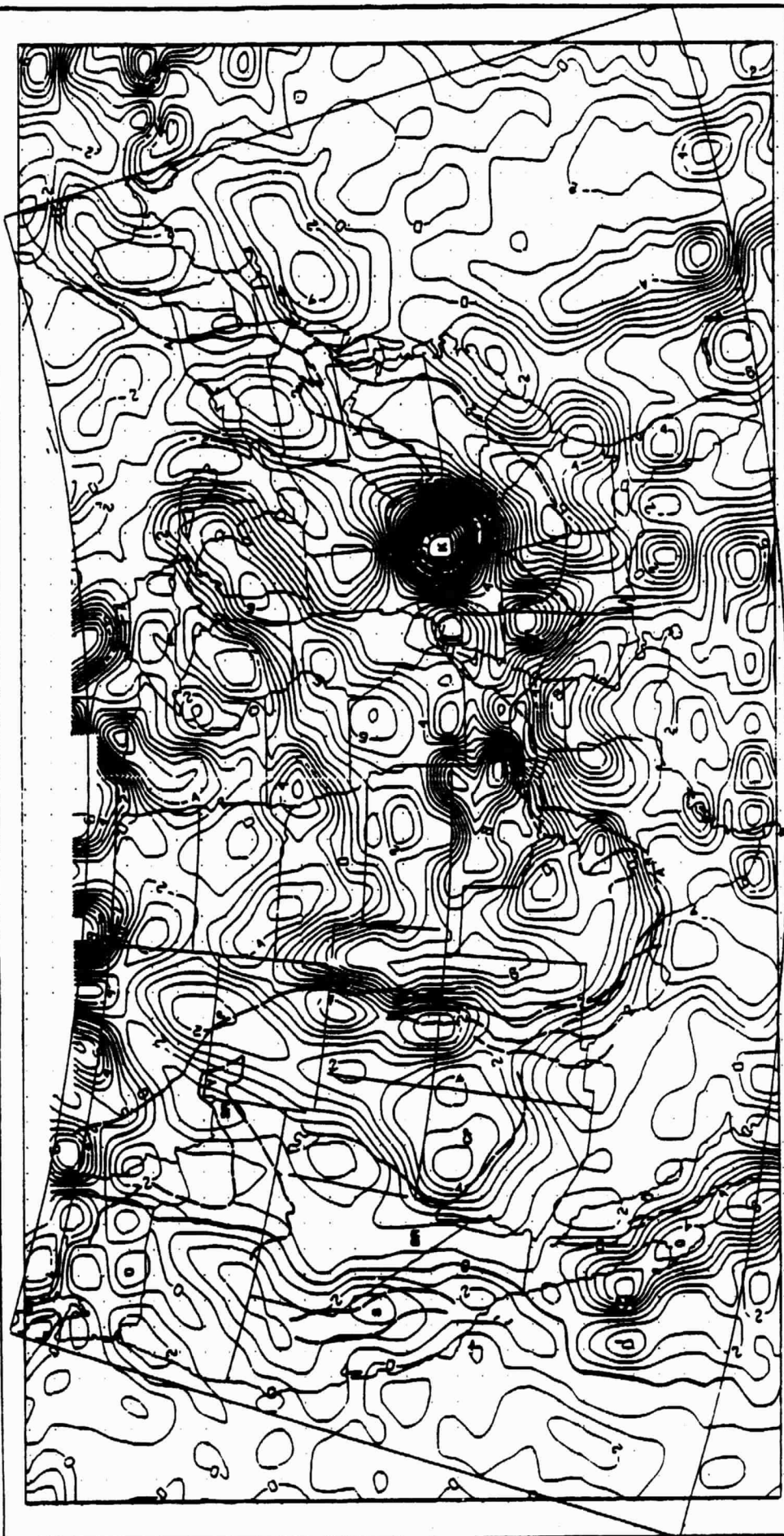
Equivalent layer magnetization model derived from inversion of Pogo data



Equivalent source magnetic anomaly field at 450 km from Pogo data



Equivalent layer magnetization model derived from inversion of Magsat delta-B data



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Equivalent source magnetic anomaly field at 300 km from Magsat delta-B data



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